

OUR RESILIENT VILLAGE

A COMPREHENSIVE RESILIENT INFRASTRUCTURE
STRATEGY FOR THE VILLAGE OF KEY BISCAINE



 **ELEVATING
OUR ISLAND
PARADISE**

Key Biscayne – Who We Are

Key Biscayne is a thriving and vibrant, residential community on a seven-mile-long, two-mile-wide barrier island only minutes from downtown Miami. Incorporated in 1991, the Village celebrated its 30th anniversary in 2021 and since then has been a **haven for those seeking and island lifestyle.**



Median household income of \$151,410



15,000 residents – 25% growth from 2010 to 2023



1,400 single family homes or duplexes



7,500 condominium units



1,000+ business and professional licenses



7,000,000+ visitors per year



Facing our Threats



RAINFALL-INDUCED FLOODING



TIDAL FLOODING



GROUNDWATER FLOODING



STORM SURGE



COASTAL EROSION



WIND













EXTREME HEAT

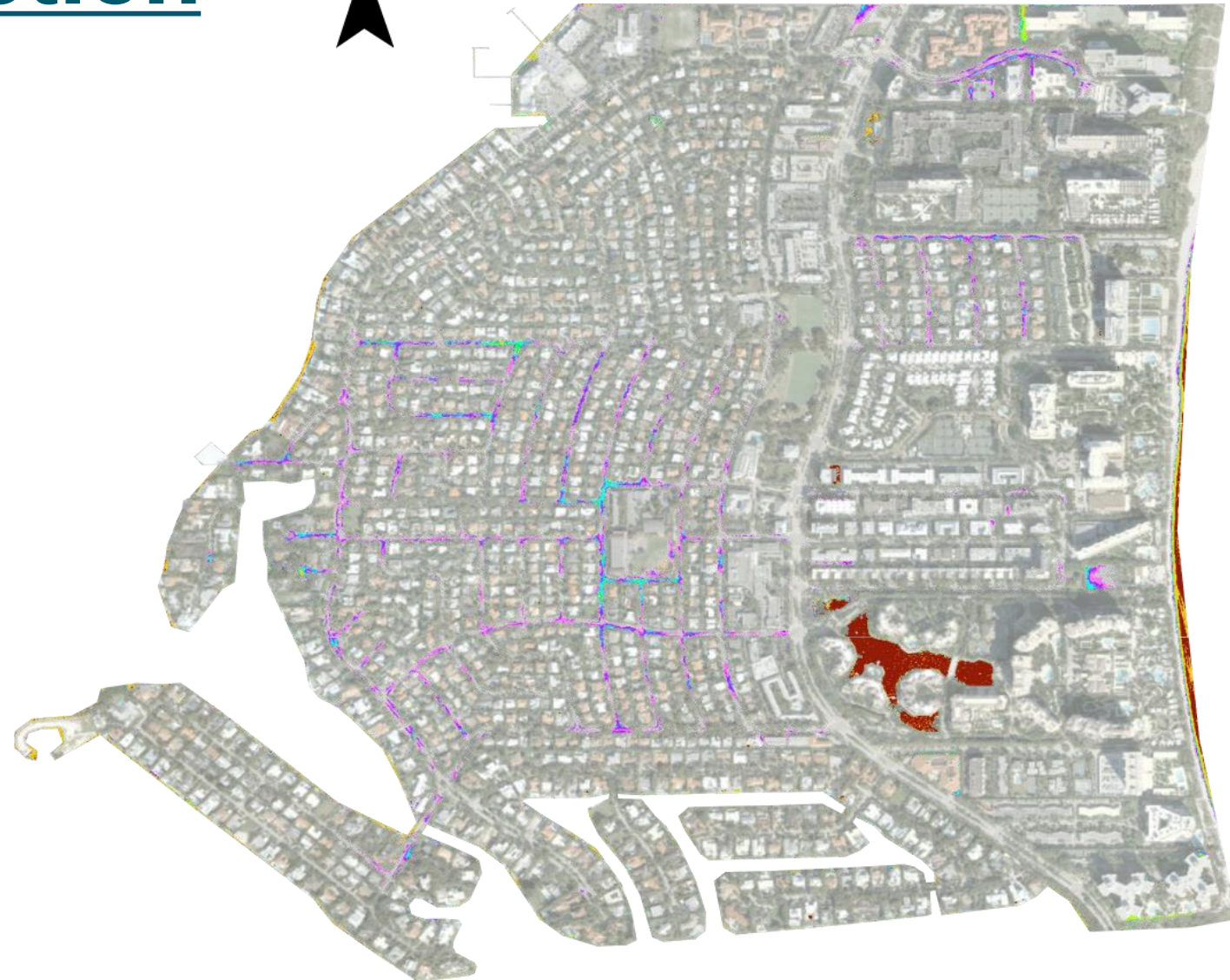
Tidal Flooding Days in 2040 without Action

- An additional 10 inches of sea level rise between now and 2040
- Roadways will experience flooding 6-20 days per year without any rain

0 0.1 0.2 0.5 Miles

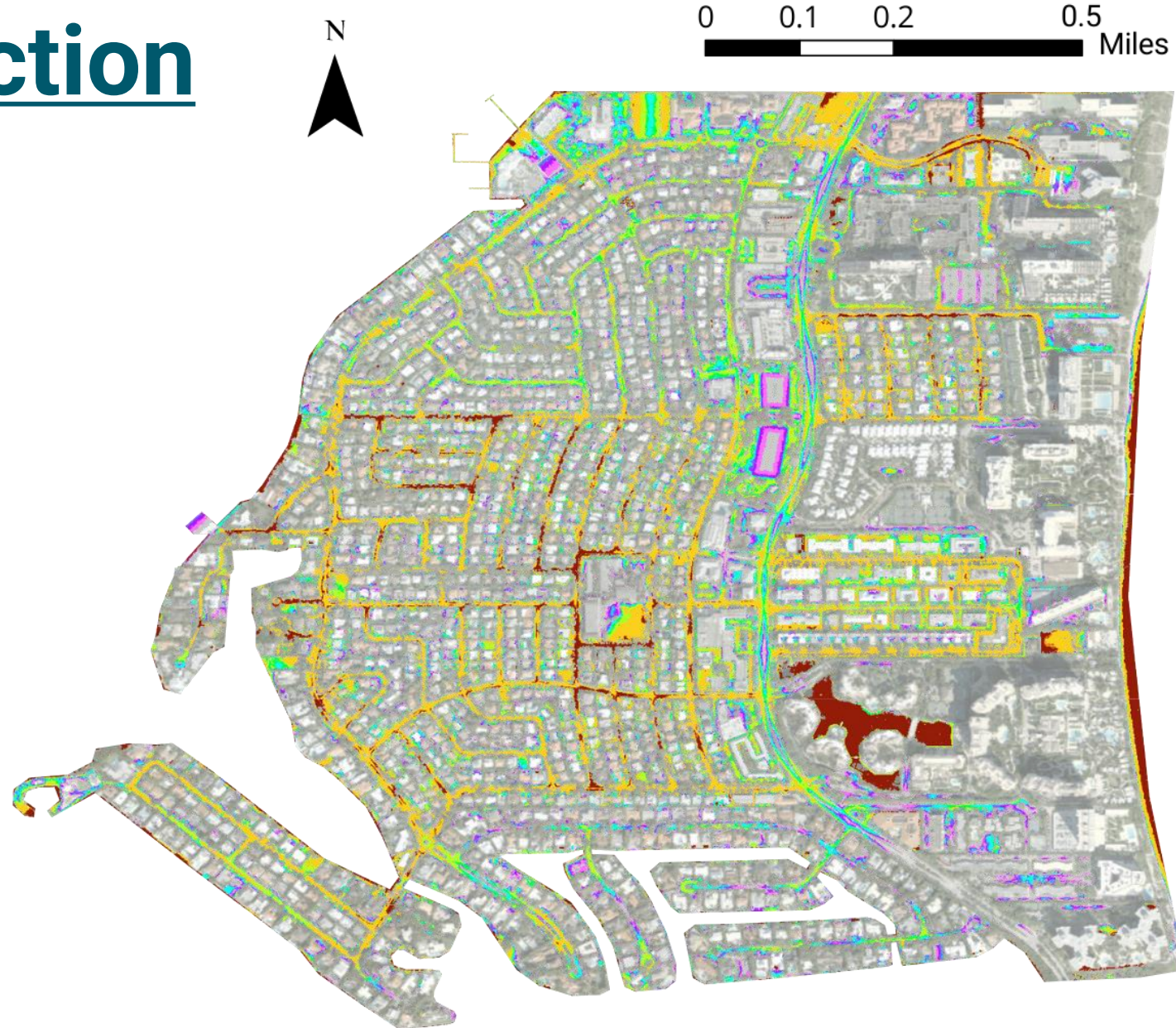
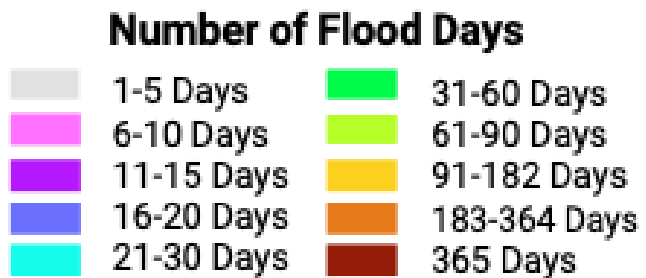


Number of Flood Days			
	1-5 Days		31-60 Days
	6-10 Days		61-90 Days
	11-15 Days		91-182 Days
	16-20 Days		183-364 Days
	21-30 Days		365 Days



Tidal Flooding Days in 2070 without Action

- An additional 32 inches of sea level rise between now and 2040.
- Most roadways will experience flooding 180 days per year without any rain
- Homes and properties will be inundated



Threats Stress Our Vulnerabilities



Low-lying barrier
island with an
unprotected shoreline



Aging stormwater
system in need of
upgrades



Exposed electrical &
telecommunication
infrastructure



Built-out, with limited
space for new
infrastructure



Regulations that are
incompatible with
our resiliency goals

Our threats cannot be change. However, with forward thinking policies, smart investment, and decisive action, we can address our vulnerabilities and reduce risks to **Our Island Paradise.**

Threats Stress Our Vulnerabilities

Vulnerability describes how susceptible something is (like the Village) to the impact of threats.

Newer homes have finished floor elevations well above the elevation of the low-lying roadway that floods

Older homes were built at the same low elevation of the road and therefore are **extremely vulnerable** to flooding

By upgrading our stormwater system, we can reduce the severity of flooding and reduce vulnerability and risk



Without Action, these are our Risks

- When a threat is combined with a vulnerability, a **risk** becomes apparent
- From hurricanes to tidal flooding, impacts will only worsen if we do not act
- **Inaction is not an option**
- By acting decisively, we will build a sustainable and resilient Key Biscayne, and our residents will experience clear benefits from our infrastructure investment.



Increase in
Damage Leads
to Decrease in
Property Value



Increase in
Insurance Costs
and Decrease in
Insurability



Decline in
Economic
Activity



Increase in
Infrastructure Cost
with a Declining
Tax Base



Decrease in
Quality of Life

Our Commitment to our Residents



Develop a comprehensive Resilient Infrastructure and Adaptation Program that protects our way of life and Elevates our Island Paradise.



Plan and execute projects such that they minimize disruption.



Focus on solutions that preserve our environment and provide multiple benefits.



Develop partnerships to include the best talent, technologies, and practices.



Clearly communicate with our residents and meaningfully include them in the conversation.



Pursue external funding to maximize the investment in our community.

Recognizing our Accomplishments

Although the Village is developing a comprehensive plan to guide future work, significant steps have already been taken to improve our community as we undertake our ambitious Village-wide Resilient Infrastructure and Adaptation Program.

- **Analyzing existing conditions:** We will understand the status and condition of all parts of our community so that we can prioritize improvements.
- **Completed Village-wide LiDAR survey:** LiDAR allows us to measure the elevations of all parts of the Village in the detail needed to do future work.
- **Designing the K-8 elementary school stormwater basin upgrade:** This is a major stormwater project that will alleviate flooding around the school.
- **Coordinating with the U.S. Army Corps of Engineers for the Beach and Back Bay study:** This study will guide the Corps' investment in our community to better protect our shoreline.
- **FPL designing electrical undergrounding:** Undergrounding our electric lines will create a more resilient community and improve service reliability.
- **Developing an agreement with Miami-Dade Water and Sewer Department for water and sewer systems:** By working together, we can reduce the need to dig multiple times.
- **Creating a seawall ordinance:** Seawalls and living shorelines serve as a flood barrier for our community, and the ordinance will stimulate a public-private partnership for flood protection.
- **Developing Complete Streets design standards:** We are updating the design standards for our roadways to create a better and safer community.
- **Executing immediate flood control and mitigation projects:** Where we know it floods and we can improve the existing stormwater system, we are doing so as quickly as possible.



Lines of Effort



Shoreline Protection

The Village, in partnership with the U.S. Army Corps of Engineers (USACE) and Miami-Dade County, is developing solutions to protect both the ocean and bayside shoreline of our island.



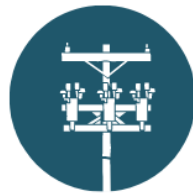
Stormwater System Upgrades

The Village is working with internationally recognized engineering firms to redesign and rebuild our aged and disconnected stormwater drainage system.



Roadway Improvements

The Village will redesign and rebuild roadways to maximize the effectiveness of the stormwater drainage system to reduce flooding while building a streetscape that improves traffic flow, safety, and water quality through green infrastructure.



Utility Hardening

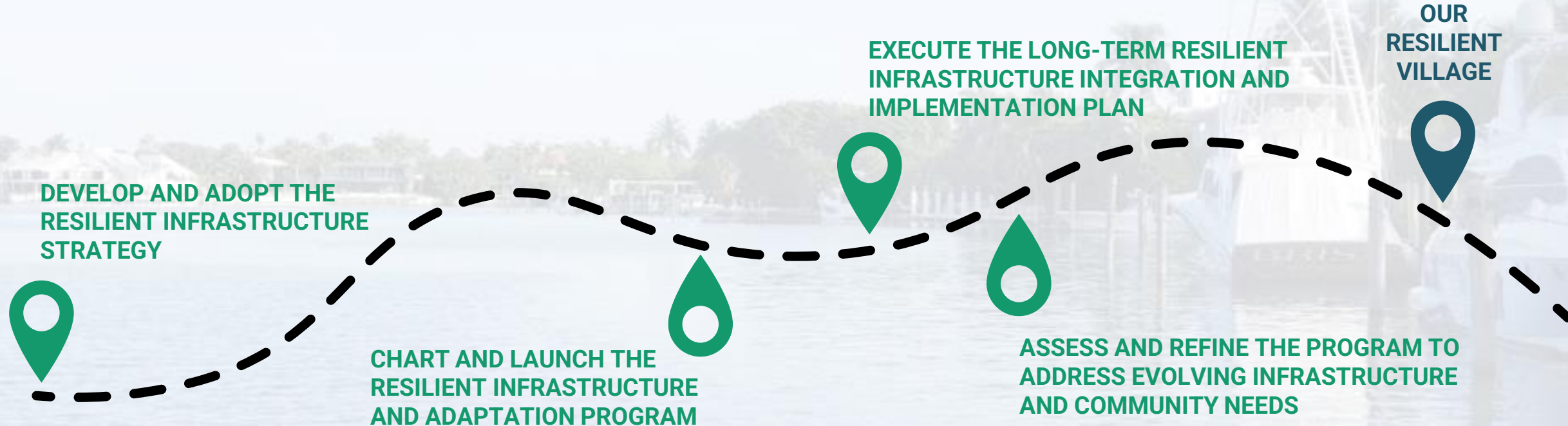
The Village is working with Florida Power & Light (FPL), telecommunications, and Miami-Dade Water and Sewer District (WASD) to underground the electrical power system and replace aged water and sewer lines.



Regulatory Modernization

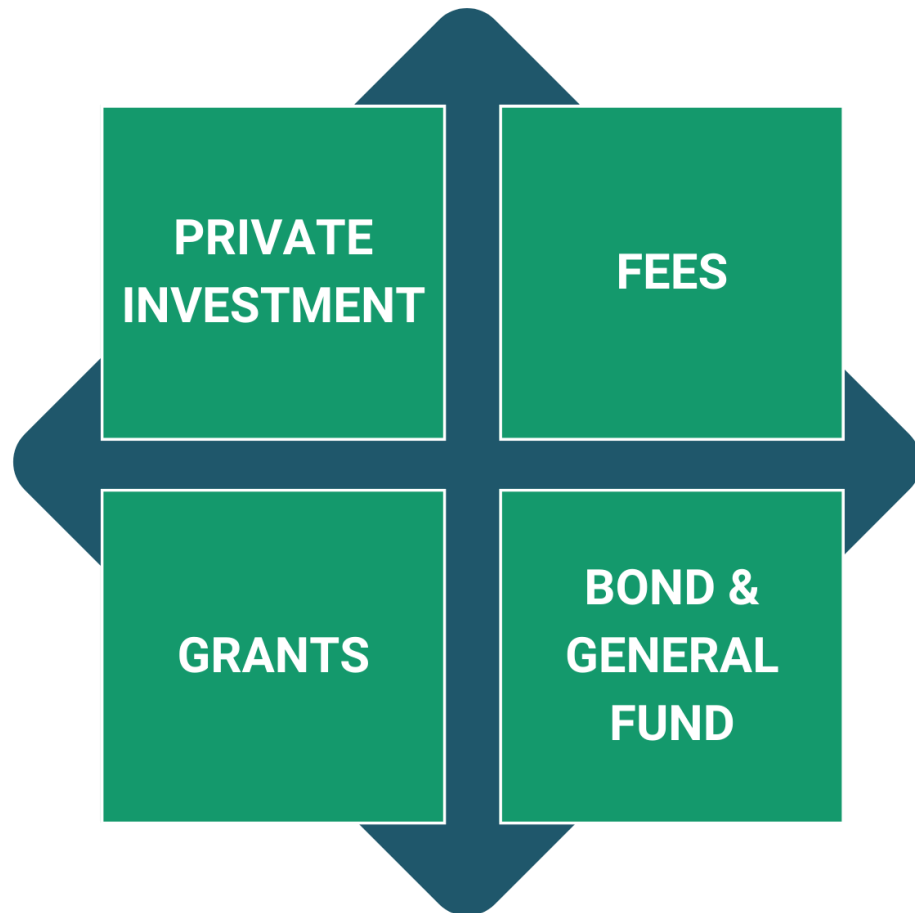
The Village is updating its critical policies, building standards, zoning regulations, and ordinances to weave adaptation for resilience into everything we build in the Village.

Charting our Course for the Future



Funding & Financing

It will take all source of investment to implement our Resilience Strategy.



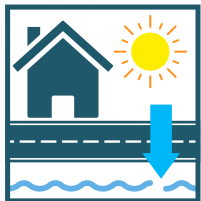
- We will have ~\$90M debt cap available for the General Obligation Bond
- We have ~\$35M debt availability backed by the stormwater fund
- We have committed to \$2-3M in annual capital improvements funding
- We are pursuing \$2-3M in annual external funding (e.g., grants)

Our Future & The Benefits of Action

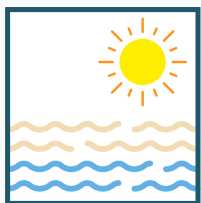
- This is an opportunity to turn our challenges into opportunities
 - We will protect property values
 - We will remain a desirable location for businesses
 - We will continue to be an ideal neighborhood to raise a family
- Upgrading the stormwater system will improve drainage of our roadways and prevent damage to the public assets and private properties caused by flooding.
- Undergrounding electrical and telecommunications lines will ensure residents and businesses will not experience power outages as frequently.

By making a significant investment **now**, we will preserve and enhance our quality of life for **generations to come**.

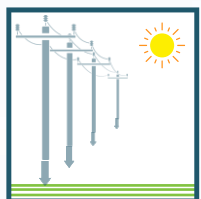
Our Resilient Village



A Village free of chronic flooding.



A Village with a strong and beautiful shoreline.



A Village with reliable and safe service under varying conditions.



A Village ready for storms and emergencies.



A Village with unparalleled quality of life.

OUR
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